

C L A I M S

1. Two-way mechano-electric transducer for transmitting and receiving mechanical vibrations, comprising a centre body (4) suspended in at least one piezoelectric elastic suspension structure (3) that is in its turn suspended in a surrounding framework (2), as well as signal wires (8) connected to said suspension structure, characterized in that said suspension structure (3) and said centre body (4) are operative for substantially simultaneous transmission of mechanical vibrations and reception of mechanical vibrations, through sector division of said suspension structure (3) and through the arrangement of separate signal wires for respective sectors (5).

2. The transducer of claim 1, characterized in that at least one sector (5) of said suspension structure (3) is adapted for emission at the same time as at least one of the other sectors (5) receives an echo signal based on said emission.

3. The transducer of claim 2, characterized in that it is adapted for use by forcing said centre body (4) against a tissue surface during an examination, whereby said sectors (5) are tensioned and set aslant so as to enhance directivity of signal emission and signal reception.

4. The transducer of claim 1, characterized in that said centre body (4) is provided with at least one piezo-element (10, 11) for transmitting and possibly receiving mechanical vibrations.

5. The transducer of claim 1 or claim 4, characterized in that different sectors (5) having receive function, and possibly also a receiving piezo-element (11) on the centre body, are connected for electronic combination of certain undesired frequencies, for noise cancellation.

6. The transducer of claim 1 or claim 4,
characterized in that the surrounding framework is in its turn suspended
in an outer frame (6) by means of an outer elastic suspension structure (7) that is
also provided with piezo-elements for delivering receive signals that can be utilized
5 for noise cancellation by combination with receive signals from the receiving sec-
tors (5) and possibly a receiving piezo-element 11 on said centre body (14).

7. The transducer of claim 1 or claim 4,
characterized in that sectors (5) with receive function are also operative
10 to receive electrical signals from a special external sensor, for cancelling certain
signals constituting undesired noise.

8. The transducer of claim 1,
characterized by attached equipment for phasing signals to and from
15 said sectors (5), to achieve directional emission and reception.

9. The transducer of claim 4,
characterized in that said centre body (4) has a separate piezo-element
(10) for transmitting ultrasound signals in a frequency range 5-10 MHz, and a sep-
20 arate piezo-element (11) for receiving reflections of these signals, for carrying out
an echo Doppler investigation, possibly simultaneously with auscultation use of at
least one of the suspension structure sectors (5).

10. The transducer of claim 1,
25 characterized in that the centre body (4) is attached to a tensioning
structure (12, 13, 15, 16, 17) at a rear side of the suspension structure (3),
whereby the centre body (4) can be pulled toward the rear to provide tensioning
and slanting for the sectors (5).

30 11. The transducer of claim 10,
characterized in that the tensioning structure (12, 13, 15, 16, 17) is
rigidly attached to the surrounding framework (2).

12. The transducer of claim 10,

characterized in that the tensioning structure (12, 13, 15, 16, 17) is rigidly attached to an outer frame (6) in which the surrounding framework (2) is

suspended by means of an outer elastic suspension structure (7), whereby as well

5 the suspension structure sectors (5) as the outer elastic suspension structure (7)

are provided with tensioning and slanting upon tensioning of the centre body (4).

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